IN THE CLAIMS:

Please cancel claims 91 - 121.

1. (original) A method for generating a representation of a track which is to be followed through a virtual space, wherein a path is steered through the space, track path data representing the path is stored, and the track is established to follow that path.

2. (original) A method according to claim 1, wherein a portion of a previously established track from which a branch track is to be established is selected, a branch track path is steered through the space from the selected portion of the previously established track, track path data representing the branch track path is stored, and the branch track is established to follow that branch track path.

3. (original) A method according to claim 1, wherein if a path is steered which comes within a predetermined distance of a previously established track, updated track path data is generated and stored which represents a junction with the previously established track, and the track is established to include that junction.

4. (original) A method according to claim 1, wherein the track is established in the form of a series of elementary segments spaced apart along the path.

5. (original) A method according to claim 4, wherein the elementary segments have a generally rectangular shape.

6. (original) A method according to claim 4, wherein the shape of an elementary segment is adjustable so as to create bend in the track.

7. (original) A method according to claim 6, wherein bend is defined in terms of an angle between an elementary segment and the immediately preceding elementary segment in the track.

8. (original) A method according to claim 7, wherein the angle between successive elementary segments is selectable and a selected angle is maintained between successive elementary segments until a different angle is selected.

9. (original) A method according to claim 4, wherein the shape of each segment may be changed so as to twist the track about the direction of the path.

10. (original) A method according to claim 1, wherein track path data is stored as a plurality of path direction vectors.

11. (original) A method according to claim 10, wherein each stored path direction vector is stored with an associated position vector, each position vector defining a start location for a corresponding path direction vector.

12. (original) A method according to claim 10, wherein the track path data stored includes a twist angle representing an angle of twist about the path direction vector.

13. (original) A method according to claim 1, wherein the generated track is displayed on a computer screen.

14. (original) A method according to claim 1, wherein the track is defined by first and second sets of co-ordinates, and members of each set are linked so as to define first and second sides for the track.

15. (original) A method according to claim 4, wherein the track is defined by first and second sets of co-ordinates, and members of each set are linked so as to define first and second sides for the track and each segment is represented by a pair of co-ordinates, a first member of the pair being a member of the first set and a second member of the pair being a member of the second set of co-ordinates.

16. (original) A method according to claim 14, wherein a plurality of members of

at least one set of co-ordinates are input to an interpolation algorithm, operative to smooth the representation of the track edge to which the said at least one set relates.

17. (original) A method according to claim 16, wherein the interpolation algorithm uses non-linear interpolation.

18. (original) A method according to claim 17, wherein the interpolation algorithm uses cubic interpolation.

19. (original) A method according to claim 18, wherein the interpolation algorithm is iterative.

20. (original) A method according to claim 18, wherein four adjacent co-ordinates from the at least one set are input to the interpolation algorithm.

21. (original) A method according to claim 20, wherein the interpolation algorithm generates a point B' approximately according to the equation:

$$B' = \mathrm{w}_a \mathrm{A} + \mathrm{w}_b \mathrm{B} + \mathrm{w}_c \mathrm{C} + \mathrm{w}_d \mathrm{D}$$

where: A, B, C and D are four adjacent co-ordinates from the first or second set of co-ordinates; B' is a point in the interval BC, and $\mathrm{w}_a \mathrm{w}_b \mathrm{w}_c \mathrm{w}_d$ are weights applied to points A B C and D respectively, calculated such that

$$\mathrm{w}_a = \frac{1 - 3t + 3t^2 - t^3}{6} \quad ; \quad ; \mathrm{w}_b = \frac{4 - 6t^2 + 3t^3}{6} \quad ;$$

$$\mathrm{w}_c = \frac{1 + 3t + 3t^2 - 3t^3}{6} \quad ; \quad \mathrm{w}_d = \frac{t^3}{6} \quad ;$$

where t is in the range 0 to 1.

22. (original) A method according to claim 13, wherein the display is presented as viewed from a predetermined camera position within the virtual space.

23. (original) A method according to claim 22, wherein the camera position is displaceable relative to the virtual space.

24. (original) A method according to claim 22, wherein the camera field of view is adjustable.

25. (original) A method according to claim 23, wherein as the path is steered through the space the camera is positioned to present a representation of the developing path.

26. (original) A method according to claim 13, wherein the generated track is displayed in the form of a plurality of polygons.

27. (original) A method according claim 22, wherein the generated track is displayed in the form of a plurality of polygons, portions of the generated track within a predetermined distance of the camera are displayed using a larger number of polygons than portions of the generated track further away from the camera.

28. (original) A method according to claim 1, wherein the virtual space is a model of planet Earth.

29. (original) A method according to claim 28, wherein the model of planet Earth comprises height values equating to heights at different points on planet earth.

30. (original) A method according to claim 29, wherein the model of planet Earth models the Earth as a number of cells.

31. (original) A method according to claim 30, wherein the Earth is represented by six patches, each patch is split up into a grid of 64 tiles by 64 tiles, each tile is divided up into 128 cells by 128 cells, and a height value is stored for each cell.

32. (original) A method according to claim 31, wherein the stored height value represents a height at a vertex of the cell.

33. (original) A method according to claim 29, wherein an interpolation algorithm is used to determine the height at a point on the model of planet Earth for which no value is stored.

34. (original) A method according to claim 33, wherein the interpolation algorithm is non-linear.

35. (original) A method according to claim 34, wherein a height value for a point P is determined by interpolating between two points A and B using an equation:

$$f(d) = 3d^2 - 2d^3$$

where: d is a fraction defined as $\frac{\text{distance(AP)}}{\text{distande(AB)}}$; f(d) is the interpolant for point A; and 1-f(d) is the interpolant for point B.

36. (original) A method according to claim 1, wherein the virtual space is a model of a domestic environment.

37. (original) A method according to claim 1, wherein the virtual space is initially featureless.

38. (original) A method according to claim 37, wherein objects may be added to the virtual space.

39. (original) A method according to claim 37, wherein objects are automatically

added to the virtual space so as to fit about the generated track.

40. (original) A method according to claim 1, wherein calculations are performed to ensure that the path remains on a predetermined side of a boundary within the virtual world.

41. (original) A method according to claim 40, wherein a first vector is defined from the centre of a spherical co-ordinate system to a point on the path, a second vector is defined from the centre of the spherical co-ordinate system to a point on the boundary within the virtual world such that said first and second vectors each have the same direction, and the magnitudes of the first and second vectors are compared to determine whether the path remains on a predetermined side of the boundary within the virtual world.

42. (original) A method according to claim 1, wherein the track path data and the virtual world are displayed on a computer display using a plurality of polygons, and the display is subject to a perspective projection view transformation, defined by an aspect ratio, a field of view angle, a camera position and near and far clip planes.

43. (original) A method according to claim 1, wherein the number of polygons to be displayed is controlled so as to ensure that the necessary calculations can be completed between two temporally adjacent display frames.

44. (original) A method according to claim 43, wherein the far clip plane is moved so as to control the distance that the camera may see, and therefore control the number of polygons to be displayed.

45. (original) A method according to claim 43, wherein the number of polygons used to display a given display area is varied.

46. (original) A method according to claim 42, wherein a timer is operated to

calculate the time between two successive updates and if the calculated time is greater than the time for each frame, the number of polygons is reduced.

47. (original) A method according to claim 42, wherein a timer is operated to calculate the time between two successive updates and if the calculated time is less than the time for each frame, the number of polygons is increased.

48. (original) A method according to claim 1, wherein the method is implemented by a computer apparatus.

49. (original) A method according to claim 48, wherein the computer apparatus is a personal computer or games console

50. (original) A method according to claim 48, wherein the computer apparatus provides means for storing track path data on a non volatile storage device.

51. (original) A method according to claim 50, wherein the storage is effected across a computer network.

52. (original) A method according to claim 51, wherein the computer network is the Internet.

53. (original) A computer program for carrying out a method according claim 1.

54. (original) A carrier medium carrying computer readable code means for causing a computer to execute procedure according to claim 1.

55. (original) A carrier medium according to claim 54, wherein the carrier medium is a DVD or CD ROM.

56. (original) A carrier medium according to claim 54, wherein the carrier medium is a communications line.

57. (original) An apparatus for carrying out a method according to claim 1.

58. (original) A computer game embodying a method according to claim1.

59 (original) A track generator for generating a representation of a track which is to be followed through a virtual space, comprising means for steering a path through the space, means for storing track path data representing the path, and means for establishing the track to follow that path.

60. (original) A method of manipulating a track to be followed, comprising selecting at least two points on the track, and applying a predetermined effect to the track between the two selected points.

61. (original) A method according to claim 60, wherein the predetermined effect twists the track about the direction of the track.

62. (original) A method according to claim 61, wherein an angle of twist is specified for the area of track between the two selected points, and appropriate twist angles are computed for parts of the track between those points.

63. (original) A method according to claim 60, wherein the predetermined effect is a variable track deformation, said variable deformation being applied to the track at the time at which it is followed.

64. (original) A method according to claim 63, wherein the variable track deformation is represented by means of a wave equation which is to be applied to the track between the two selected points.

65. (original) A method according to claim 64, wherein the track has two sides, is defined by a set of co-ordinates at each side, and the wave equation is applied to each point along its length.

66. (original) A method according to claim 64, wherein the wave equation has a general form:

$$displacement = \cos M(phase + (speed \times time)) \times size$$

where cos*M* is a function such that:

$$\cos M(n) = \cos\left(\frac{\pi n}{M}\right);$$

speed is the speed of the wave obtained from a lookup table;

time is a global clock implemented by the software;

size is the amplitude of the modelled wave;

$$phase = ((TrackIndex \times PhaseInterval) + PhaseOffset) \bmod A;$$

TrackIndex, PhaseInterval and PhaseOffset are all obtained from a lookup table as described below;

& is a bitwise logical AND operation; and

A is an integer.

67. (original) A method according to claim 63, wherein data representing a plurality of real time deformations is stored and the user may select one of said plurality of real time deformations.

68. (original) A method according to claim 60, wherein the predetermined effect comprises applying a texture to the surface of the track.

69. (original) A method according to claim 68, wherein the effect is applied using a texture mapping algorithm

70. (original) A method according to claim 68, wherein the applied texture causes the track to become transparent such that a virtual space through which the track

passes is visible through the track.

71. (original) A method according to claim 68, wherein the applied texture affects characteristics of an object following track.

72. (original) A method according to claim 71, wherein the characteristics are affected so as to model a surface effect on the track.

73. (original) A method according to claim 72, wherein the surface effect is snow, water or dust.

74. (original) A method according to claim 60, wherein the effect comprises deleting the track to be followed between the two selected points.

75. (original) A method according to claim 60, wherein the track to be manipulated is provided with a first barrier at a first side of the track, and a second barrier at a second side of the track.

76. (original) A method according to claim 75, wherein the effect comprises applying a texture to a barrier.

77. (original) A method according to claim 75, wherein the effect comprises adjusting the height of a barrier.

78. (original) A method according to claim 60, wherein the effect comprises adding an object which may be moved to a position adjacent the track.

79. (original) A method according to claim 60, wherein the effect comprises adding a feature to the track, such that an object following the track is affect by collision with the feature.

80. (original) A method according to claim 79, wherein the feature causes an object colliding therewith to be given an additional propulsion force.

81. (original) A method according to claim 60, wherein the method is implemented by a computer apparatus.

82. (original) A method according to claim 81, wherein the computer apparatus is a personal computer or games console

83. (original) A method of manipulating a track generated using a method according to claim 1, using a method according to claim 60.

84. (original) A computer program for carrying out a method according to claim 60.

85. (original) A carrier medium carrying computer readable code for causing a computer to execute procedure according to claim 60.

86. (original) A carrier medium according to claim 85, wherein the carrier medium is a DVD or CD ROM.

87. (original) A carrier medium according to claim 85, wherein the carrier medium is a communications line.

88. (original) An apparatus for carrying out a method according to claim 60

89. (original) A computer game embodying a method according to claim 60.

90. (original) An apparatus for manipulating a track to be followed, comprising means for selecting at least two points on the track and means for applying a predetermined effect to the track between the two selected points.

Claims 91 - 121 (cancelled).